

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**TITLE: TECHNIQUE FOR MANUFACTURING A MOBILE ELECTRONIC DEVICE AND  
A MOBILE ELECTRONIC DEVICE MANUFACTURED IN ACCORDANCE WITH THE  
TECHNIQUE**

Inventors

**Jouni MAKI  
Jussi HAKUNTI**

Prepared by:

Antonelli, Terry, Stout & Kraus, LLP  
1300 North Seventeenth Street, Suite 1800  
Arlington, Virginia 22209  
Tel: 703/312-6600  
Fax: 703/312-6666

095557.10901

**Field of the Invention:**

The present invention relates to a technique for manufacturing a mobile electronic device and a mobile electronic device manufactured in accordance with the method and more particularly, the present invention relates to a technique for manufacturing a mobile electronic device, such as a mobile telephone, and a mobile electronic device manufactured in accordance with the method in which both a mobile electronic device having a monoblock configuration and a mobile electronic device having a hinged flip cover may be manufactured using the same engine and software.

**Description of the Related Art:**

Presently, mobile telephones are being manufactured in two basic configurations, namely, a monoblock configuration in which the keypad and display of the telephone are exposed at all times and a flip phone configuration in which a hinged flip cover is used to cover the keypad and in some cases also the display of the telephone. Since both of these configurations are popular with consumers, it has been necessary to manufacture both of these configurations.

At present, each configuration requires a different engine and software, requiring the manufacturer to manufacture and inventory two different engines. Since the cost of manufacturing the engines is very volume sensitive, that is, the cost per unit decreases as the number of units increases, the cost per unit for manufacturing two different engines is considerably higher than the cost per unit for manufacturing a single engine.

**06-00000000000000000000**



The foregoing and a better understanding of the present invention will become apparent from the following detailed description of example embodiments and the claims when read in connection with the accompanying drawings, all forming a part of the disclosure of this invention. While the foregoing and following written and illustrated disclosure focuses on disclosing example embodiments of the invention, it should be understood that the same is by way of illustration and example only and that the present invention is not limited thereto. The spirit and scope of the present invention are limited only by the terms of the appended claims.

Figure 1 is an exploded view of a mobile electronic device, such as a mobile telephone, having a flip type cover assembly.

Figure 3 is an exploded view of elements used in manufacturing a mobile electronic device, such as a mobile telephone, in accordance with an embodiment of the present invention.

Figure 5 is a partial view of the flip type cover assembly of Figure 4.

Figure 6 illustrates a detector switch of the flip type cover assembly of Figure 4.

4

Before beginning a detailed description of the subject invention, mention of the following is in order. When appropriate, like reference numerals and characters may be used to designate identical, corresponding, or similar components in differing drawing figures. Furthermore, in the detailed description to follow, example sizes/models/values/ranges may be given, although the present invention is not limited thereto.

Figure 1 is an exploded view of a mobile electronic device, such as a mobile telephone, having a flip type cover assembly. An engine 130, containing electronic circuitry and power source (e.g.-a battery) and software stored therein, is disposed between a back cover 140 and a front cover 110 having a flip cover 115. A keypad 120 is disposed between the front cover 110 and the engine 130. Various means may be used to electrically connect the keypad 120 to the engine 130 including wires and mating electrical connecting pads.

In earlier arrangements, the engine 130 and the engine 230 were not identical, necessitating the manufacturing and inventorying of two different engines containing two

Figure 3 is an exploded view of elements used in manufacturing a mobile electronic device, such as a mobile telephone, in accordance with an embodiment of the present invention. A single engine 330, containing electronic circuitry and a power source and software stored therein may be used in constructing both an electronic device having a flip type cover assembly and an electronic device having a monoblock type cover assembly.

Alternatively, if an electronic device having a monoblock type cover assembly is to be manufactured, the engine 330 is disposed between a back cover 340 and a front cover 310. A keypad 320 is disposed between the engine 330 and the front cover 310 and is electrically connected to the engine 330.

By manufacturing a mobile electronic device in accordance with the present invention, it is only necessary to manufacture and inventory a single engine containing a single software program, thereby decreasing manufacturing costs.

Figure 4 is an exploded partial view of a flip cover of a flip type cover assembly of a mobile electronic device, such as a mobile telephone, in accordance with an embodiment of the present invention. Figure 5 is a partial view of the flip type cover assembly of Figure 4. Figure 6 illustrates a detector switch of the flip type cover assembly of Figure 4. Figure 7 illustrates an engine assembly of a mobile electronic device, such as a mobile telephone, in accordance with an embodiment of the present invention.

6

The electrical pads 770 are disposed on the engine 330 and are not used when the engine 330 is assembled in an electronic device having a monoblock type cover.

In an embodiment of the present invention, the electronic device is turned on only when the detector switch 460 has detected that the flip cover is open. This is opposite from the usual arrangement and results in an increased standby time.

7